NASA CoF Prioritization Process

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NASA Mission:

To pioneer the future in space exploration, scientific discovery, and aeronautics research.

NASA's Strategic Goals

- **Fly the Shuttle as safely as possible until its retirement, not later than 2010.**
- **Complete the International Space Station in a manner consistent with NASA's International Partner commitments and the needs of human exploration.**
- **3: Develop a balanced overall program of science, exploration, and aeronautics consistent with the redirection of the human spaceflight program to focus on exploration.**
- **4: Bring a new Crew Exploration Vehicle into service as soon as possible after Shuttle retirement.**
- **5: Encourage the pursuit of appropriate partnerships with the emerging commercial space sector.**
- **6: Establish a lunar return program having the maximum possible utility for later missions to Mars and other destinations.**

NASA

Safety and Mission Assurance

Program Analysis and Evaluation

Chief Engineer

Office of the Administrator

Administrator

Deputy Administrator

Associate Administrator

Chief of Staff
Deputy Chief of Staff/
White House Liaison

Inspector General

NASA Advisory Groups

Mission Directorates

- Aeronautics Research
- Exploration Systems
- Science
- Space Operations

Mission Support Offices

- Chief Financial Officer
- Chief Information Officer
- Chief Health and Medical Officer
- General Counsel
- Innovative Partnership Program
- Institutions and Management
  - Diversity and Equal Opportunity
  - Human Capital Management
  - Infrastructure and Administration
  - NASA Shared Services Center
  - Procurement
  - Small and Disadvantaged Business Utilization
- Integrated Enterprise Management Program
- Security and Program Protection
- Strategic Communications
  - Education
  - External Relations
  - Legislative Affairs
  - Public Affairs

NASA Centers

- Ames Research Center
- Dryden Flight Research Center
- Glenn Research Center
- Goddard Space Flight Center
- Jet Propulsion Laboratory
- Johnson Space Center
- Kennedy Space Center
- Langley Research Center
- Marshall Space Flight Center
- Stennis Space Center

Facilities Engineering and Real Property Division

* In accordance with law, the offices of Diversity and Equal Opportunity and Small and Disadvantaged Business Utilization maintain reporting relationships to the Deputy Administrator and Administrator.

Facilities Engineering and Real Property Division

Crosscutting Technology (1)

Director (3)
E.F. "Gene" Hubbard
Deputy Director
Secretary

Resources Team (3)

- CoF Funds Management, Budget Formulation, Exhibits
- Resources Leveling
- Reprogramming
- Program Analyses
- Functional Leadership funds
- Financial Management Expertise

Provides leadership, oversight, and coordination of NASA's real property management program to reduce institutional risk to NASA mission. We ensure real property meets program requirements, is sustainable, and is available at the time of program need. We advise the Administrator on real property matters and advocate real property funding.

Planning & Real Estate (3)

- Capital Risk Management
- Program Sustainment Planning
- Strategic Alignment of Real Estate
- Real Property Asset Management
- Facility Programming and Reporting
- Real Property Data Bases
- Utilization
- Executive Order 13327/PMA
- Real Estate Acquisition and Disposal

Design & Construction (5)

- Construction of Facilities program management
- Mission risk management through technical facility advice to programs
- Policy for facility design and construction
- Advocacy for the facilities program
- Implement facility industry best practices
- Analyze and develop the CoF institutional program
- Mitigate facility risk for executability of NASA Programs

Operations & Maintenance (3)

- O&M Risk Management
- Mission Supportability
- Maintain Safe and Healthy Facilities
- Condition Surveys (facilities & equipment)
- Reduce risk of facility failure and reduce facility costs through O&M Best Practices
- Maintenance Management Systems
- Reliability Centered Maintenance
- Resource Strategies
- Building Commissioning

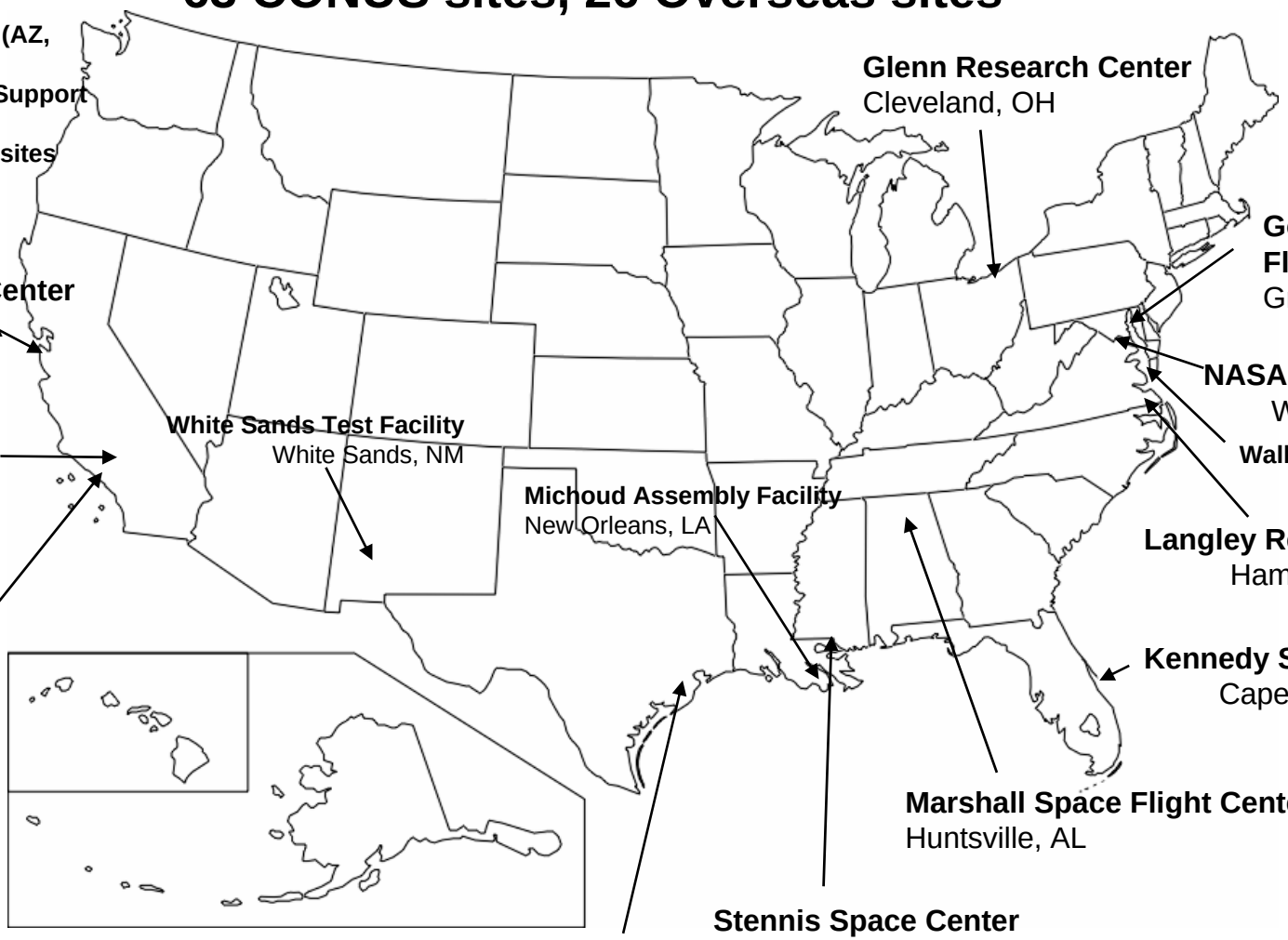
Agency Real Property Management Goals

1	**NASA will identify and address real property requirements as an integral part of Agency, Enterprise, program, and project planning.**
2	**NASA will construct and operate new real property to meet mission requirements only when existing capabilities cannot be effectively used or modified.**
3	**NASA will continually evaluate its real property assets to ensure alignment with the NASA Mission.**
4	**NASA will leverage its real property to its maximum potential.**
5	**NASA will sustain, revitalize, and modernize its real property required by the NASA Mission.**

NASA CENTERS

63 CONUS sites, 26 Overseas sites

Other NASA sites:
Deep Space Network (AZ, Madrid, Australia)
Western Operations Support (Palmdale, CA)
Other miscellaneous sites



Glenn Research Center
Cleveland, OH

Goddard Space Flight Center
Greenbelt, MD

NASA Headquarters
Washington, DC

Wallops Flight Facility
Chincoteague, VA

Langley Research Center
Hampton Roads, VA

Kennedy Space Center
Cape Canavrel, FL

Marshall Space Flight Center
Huntsville, AL

Stennis Space Center
Biloxi, MS

Johnson Space Center
Houston, TX

Michoud Assembly Facility
New Orleans, LA

White Sands Test Facility
White Sands, NM

Ames Research Center
Mountain View, CA

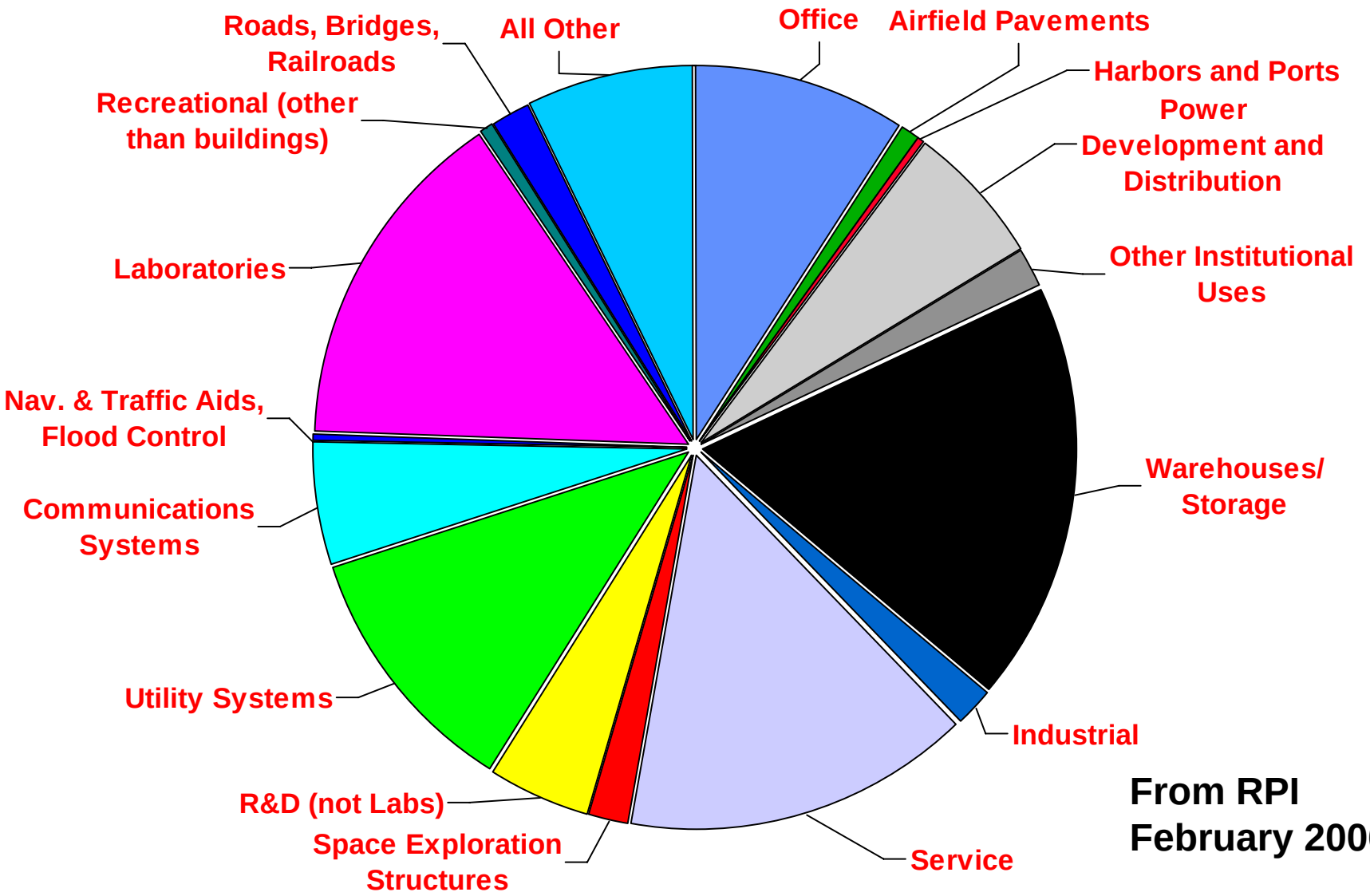
Dryden Flight Research Center
Edwards, CA

Jet Propulsion Laboratory
Pasadena, CA

NASA Real Property

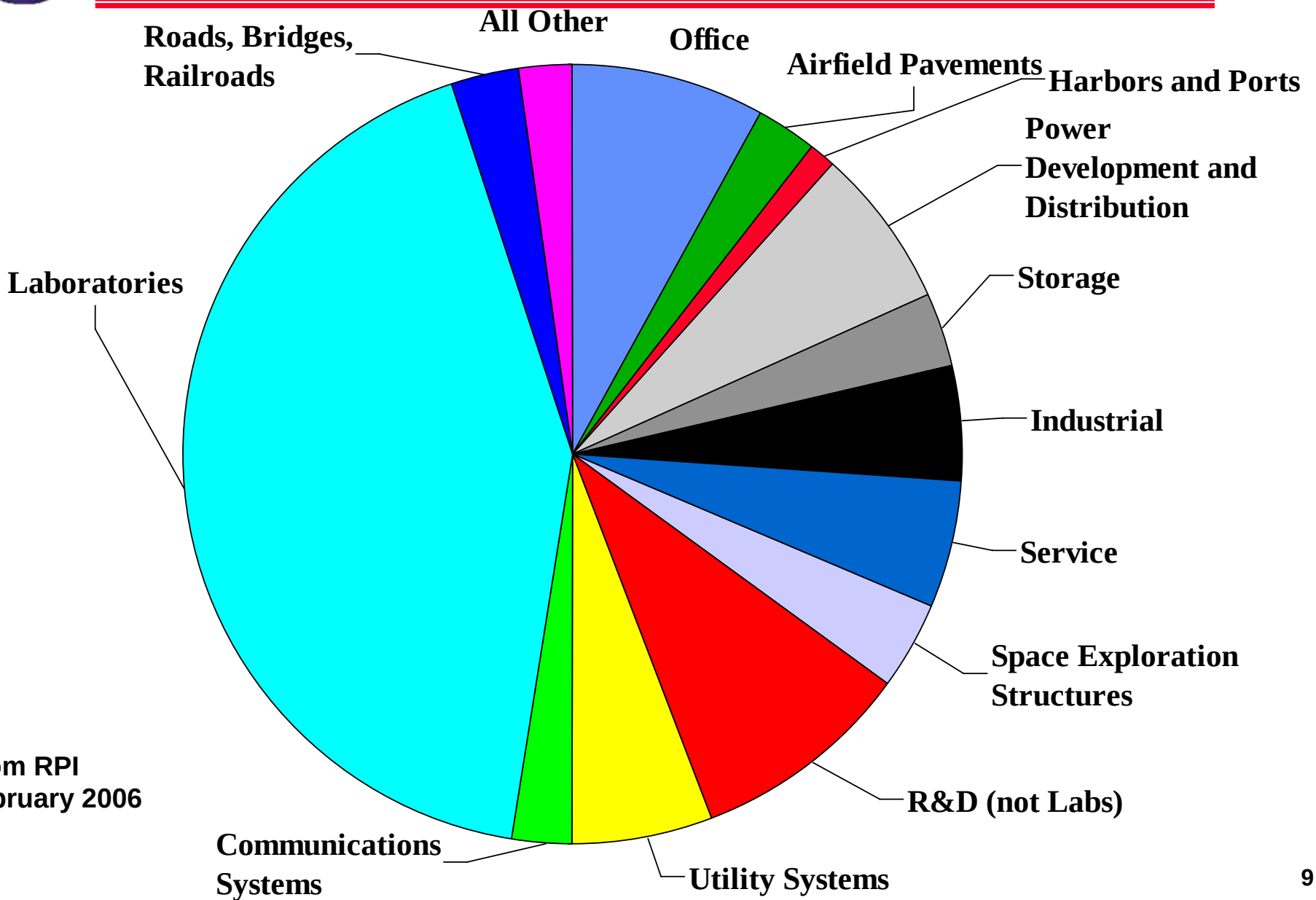
- Just the Facts:
  - Over 2700 Buildings
  - Over 2400 Other Structures
  - Over $23 Billion Current Replacement Value
  - 44 Million Square Feet
  - Over 360,000 Acres
  - Aged, high technology facilities.

Facility by Type (# of facilities)



From RPI
February 2006

Facilities by Type (replacement value)



From RPI
February 2006

FY 2008 Facilities Strategy

- Invest in facility maintenance, repair, replacement and demolition/disposal to ensure that our infrastructure will fully enable current and future missions.
  - ensure that the Center's basic utility distribution and infrastructure systems are capable of supporting these critical facilities;
  - invest in sustainable operations, design and construction;
- **Eliminate un-used and obsolete facilities that are not required for the current strategic objectives;**

…To ensure facilities are the right type and size, and are safe, secure, environmentally sound, and available when needed.

Facility Goals/Targets

- Focus on mission sustainment & good stewardship
  - Improve Facility Condition Index
  - NASA currently at 3.7 (“fair”…on a 5 point scale) for active facilities. Target: 4.3 (“good”) by 2020.
    - Interim goals of 4.0 in 2011, 4.2 in 2015.
  - “Right-size” through demolition, disposals, repair-by-replacement (Strategic Investment Account).
- Focus on basic infrastructure, institutional renovation in support of mission, reduction of infrastructure risk to Program.
- Focus on Agency and federal initiatives (sustainability, accessibility, security, safety, health, environmental compliance, energy).

NASA CoF

- "Institutional" and "Program Direct" CoF categories.
  - **Institutional (Prioritized Agency-wide)**: repairs/construction to common facilities (supporting infrastructure (roads, utilities, etc.), common administrative buildings (Center HQ buildings), quality of life facilities (gyms, child care).
    - Primarily repair projects in current budgets.
    - Funded through G&A (or potentially HQ program).
  - **Program Direct**: Projects supporting facilities used directly by one or more Programs (test facilities, labs, R&D, launch facilities).
    - Primarily construction, renovation, modification projects.
    - Funded directly by benefiting Programs.

How Do I Get CoF Health Projects?

- Ensure that Health RAC is Accurately Completed, including written description of problem and impacts.
  - Indoor Air Quality Concerns
  - Water Infiltration/Mold
  - Water Contamination (e.g., bacteria , etc.)
- Meet with Center Facilities Representative to Familiarize with Health Concerns Early In Process
  - CoF Projects Planned and Approved two years in Advance
  - Discuss Facility Problems which lead to Health Concerns (e.g. leaking roof to potential mold, etc.)

Health RAC Matrix

Derived from Mil Std 882-System Safety Program Requirements

	Probability Estimate				
Severity Class	A	B	C	D	E
I	1	1	2	3	4
II	1	2	3	4	5
III	2	3	4	5	6
IV	3	4	5	6	7

Figure 3.2 Risk Assessment Code Matrix
(See paragraph 3.6.1 for RAC usage.)

Health RAC Matrix (cont.)

- 3.6.1.1 Severity is an assessment of the worst potential consequence, defined by degree of illness or exposure, which could occur. The severity classifications are defined as follows:

  - Class I - Catastrophic - A condition that may cause death or permanently disabling illness.
  - Class II - Critical - A condition that may cause severe occupational illness.
  - Class III - Moderate - A condition that may cause minor occupational illness.
  - Class IV - Negligible - A condition that could cause the need for minor first aid treatment though would not adversely affect personal health.

Health RAC Matrix (cont.)

- 3.6.1.2 Probability is the likelihood that an identified hazard will result in an occupational illness or exposure, based on an assessment of such factors as location, exposure in terms of cycles or hours of operation, and affected population. The following is an example of Probability Estimation:

  - A - Likely to occur immediately. (X > 10-1)
  - B - Probably will occur in time. (10-1≥ X > 10-2)
  - C - May occur in time. (10-2≥X > 10-3)
  - D - Unlikely to occur. (10-3≥X > 10-6)
  - E - Improbable to occur. (10-6≥X

PPBES 06 CoF Prioritization

- Objective: To meet Agency-wide CoF strategic goals, ensuring compliance with Agency strategic plan goals and guiding principals.
- Process:
  - CoF Program Data Call sent to Centers.
  - Centers submitted prioritized, unconstrained list.
  - Agency reviewed, integrated, and “scored” for initial priorities.
  - Centers reclama’d, presented issues.
  - Agency reviewed reclama’s, developed final priority list.

PPBES 06 Institutional CoF Prioritization Factors

- **Center priorities (30)**
- **Improves Sustainability (20)**
  - Reduces Deferred Maintenance
  - Corrects Environmental Compliance problem
  - Exemplified Sustainable Project
  - Reduces unnecessary real property/demolition included
- **Meets Regulatory/Safety Needs (20)**
  - Improves Safety
  - Essential Security Upgrade
  - Improves Accessibility
  - Improves Center Health
  - Complies with Preserve America/NHPA
- Strategic (e.g., improves FCI towards goal) (10)
  - FCI
  - Mission Criticality/ MDI
  - Utilization
- Well Planned (10)
  - Consistent with Master Plan
  - Completed Requirements Document
  - Completed LCC/Economic Analysis
  - Completed PDRI
- Follow-on phase (10)

PPBES 06 Institutional CoF Prioritization Players

- Centers (initial input and review/reclama)
- Mission Directorates (review and comment)
- CFO (advisory)
- PA&E (advisory)
- I&A FERPD (conduct prioritization process)
  - Safety & Mission Assurance
  - Security and Program Protection
  - Diversity & Equal Opportunity
  - Environmental Management Division
  - Chief Engineer
  - Chief Health and Medical Officer
- Presented to Facilities Review Board
- Submit to CFO/PA&E for FY2008 budget
- Present to Deputy Administrator

CoF Prioritization Results

- A total of 619 projects, at $2.4B institutional CoF was submitted by the Centers.*
- Priority list developed based on available institutional CoF funding.
- Final priority list published to Centers and Agency (3/28/06), copies provided to FRB members.

	FY2008		FY 2009	
Center	$M	#	$M	#
ARC	$10,600	3	$13,300	7
DFRC	$9,050	4	$10,050	5
GRC	$8,900	5	$11,700	6
GSFC	$5,400	3	$14,400	7
JPL	$8,150	5	$11,400	5
JSC	$27,600	6	$22,800	10
KSC	$19,500	4	$17,400	4
LaRC	$12,200	6	$12,000	5
MSFC	$18,300	5	$14,800	3
SSC	$3,400	2	$14,700	6
Total:	$123,100	43	$142,550	58

***96/$291M FY08, 116/$283 FY09**

FY 07 PPBES CoF Prioritization

- CoF Prioritization establishes Agency CoF Priorities consistent with the Real Property Management Plan
- Study Incorporation of Risk Management to a Greater Degree in the Process
  - Currently Safety and Health RAC (Risk Assessment Code) numbers are used in CoF Data Call as factors.
  - Investigate Other Areas for Managing Risk in the Process, e.g. GSFC uses a Risk Matrix for Center Process.
- Review Lessons Learned
  - Prioritization Process Participants were requested to provide input for Lessons Learned to improve the process
  - Design & Construction Team will review comments received, work to incorporate and further critique the process
- CoF Prioritization Timeline – starting process earlier

Center Input Required for Each Project (Draft)

- Certification Statement that all projects submitted will meet requirements of NPD/NPR 8820. (Audit requirement of Certification delegated to Center).

- Project Information: Name, Description, Amount, Earliest Year of Execution, 1509's for FY 09 & FY10

- Impact Statement addressing "What is the impact if project is not done, and what is the impact if project is delayed?"

- Rating Project Drivers for each Project (5 Categories) and include Explanation/Justification of reason drivers were selected.

- Center Priority – recommended Center Priority with the Center's perceived risk and urgency (Priority Order)

HQ Mission and Mission Support Offices (Draft)

- Headquarters Assessment based upon agency-wide priorities

- FERPD to Receive Input from Mission and Mission Support Offices prior to On-board Review/Prioritization Process

CoF Prioritization Process (Draft)

- Certification Statement
  - To be submitted with each submission
  - Center must certify that all projects submitted will meet all requirements in NPD/NPR 8820 (e.g. Best Practices)
- Prioritization Factors Restricted to Discriminators/Project Drivers Only
  - Catalog of roughly 20 factors distilled to Five Categories

Project Drivers Consolidation (Draft)

- **Addresses Safety/Health/Security Issues (4 points)**
  - Safety/Corrects a safety problem
  - Health/Corrects a health problem
  - Security/Corrects a security problem
- **Federal Mandate (3 points)**
  - Outside Driver (e.g. Congressional Interest, OMB, etc.)
  - Regulatory Compliance (e.g. Environmental, ADA)
- **Improves Facility Condition (2 points)**
  - Reduces deferred maintenance
  - Improves reliabilities
  - Reduces Infrastructure
  - Maintenance burden
  - Reduces unnecessary real property
  - Updated technology
- **Good business decision (1 points)**
  - Reduces Op/Maintenance Cost
  - Center Management Directed

CoF Prioritization Process (Draft)

- Three Dimensional (3D) Assessment Approach
- Each project will be rated on 3 Axis
  - Project Drivers (X Axis)
    - Drivers must be the Substantial Reason for the Project
  - Center Priority based upon severity, probability of occurrence, mission dependency (Y Axis)
  - Headquarters Assessment based upon agency-wide priorities (Z Axis)

Headquarters Facility Assessment (Draft)

- Project is necessary to prevent major damage to Government property or resources, or project furthers NASA's strategic objectives. Project is a follow-on phase to previous year's project and must be completed. (4 points)

- Project supports necessary licensing, regulatory, accreditation, or code requirements. (3 points)

- Project is necessary to provide or upgrade infrastructure support to mission critical facilities, or project improves reliability of mission critical infrastructure and utilities. (2 points)

- Project supports improved installation operations. (1 point)

Project Example – 3D Assessment (Draft)

- **Project Drivers Consolidation (X Axis**) (possible 10 points)
  - Addresses Safety/Health/Security Issues (4 points)
  - Federal Mandate (e.g. Environmental, ADA, Political) (3 points)
  - Improves Facility Condition (2 points)
  - Good Business Decision (1 point)

- **Center Priority (Y Axis)** (possible 10 points)
  - Listed in Priority Order) (Unconstrained list with earliest year of execution noted)
  - Center's perceived risk and urgency (Priority Order)
  - Mission Related
    - Urgency
    - Required to support core- mission
    - Prevents damage of critical property
    - Schedule Capability Center Consolidation

- **Headquarter Facility Assessment (Z Axis)** (possible 10 points)
  - Prevents major damage to Government property or resources, furthers NASA's strategic objectives, follow-on phase to previous year's project (4 points)
  - Licensing, Regulatory, Accreditation, or Code Requirement (3 points)
  - Mission Critical Facilities, Reliability of Mission Critical Infrastructure and Utilities (2 points)
  - Improved Installation Operations (1 points)

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CoF Course

- Construction of Facilities (CoF) Course at Wallops October 2-6, 2006

- CoF Course Overview during future Occupational Health Program Vits

Contact Information

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